Eminectomy for the Management of Closed Lock of Temporomandibular Joint

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Introduction

Pain in the temporomandibular joint (TMJ) is associated with difficulty in opening or closing the mouth, clicking, crepitus, pain during mastication which radiates to the ears, temple, upper shoulder and neck of the affected side. The common causes for pain in the TMJ are post traumatic heamarthrosis, osteoarthritis, hyper mobility, dystrophic calcifications, internal derangement, degenerative changes in meniscus, myofascial pain dysfunction and rheumatoid arthritis. Before planning a treatment strategy it is essential to identify the aetiology.

Laxity in the articular disc causes loss of coordination between condyle disc complex leading to internal derangement. In patients complaining of pain, if the disc retraces its path to its anatomical location after opening and closing mouth, the diagnosis is of disc dislocation with reduction. Closed lock is a derangement of the condyle disc complex and it refers to disc dislocation without reduction [1]. Over a passage of time, disc dislocation with reduction can progress to disc dislocation without reduction. Once the meniscus is dislocated and does not reduce, forces applied across the joint can result in degeneration of the bilaminar tissues and perforation [2]. Our present knowledge of the causes of internal derangement (ID) of the TMJ is inadequate. Bruxism, over loading of the joint, osteoarthritis and spasm of the lateral pterygoid muscle are some of the reasons advanced. But osteoarthritis and remodeling of the condylar head follows ID and not vice-versa. In patients with ID, pain diminishes with time. A radiographic study by Nickerson et al [3], found that such patients had condyle which was considerably decreased in size. The decrease in size of the condyle increases joint space and thereby reduces pain. Taskaya et al [4], in a magnetic resonance imaging (MRI) study of 115 patients with TMJ ID and 21 subjects without

clinical symptoms, found that spasm of lateral pterygoid muscle causes disc displacement and atrophy following degeneration of the lateral pterygoid muscle. A case of closed lock surgically corrected by performing eminectomy is being presented.

Case Report

A 46 year old female patient reported with complaint of inability to open mouth fully and pain near the right ear. Patient had clicking and pain of the joint for the past 7-8 months. On examination her interincisal opening was 22mm on normal opening and it increased to 34 mm on forceful opening. She had 32 teeth and class I occlusion. There was no history of trauma to the face or bruxism. Mandibular movement was restricted on the left side. Patient was prescribed analgesics, short wave diathermy, muscle relaxants and soft diet for seven days. The severity of pain reduced but the difficulty in mouth opening persisted.

Transcranial radiographs of both the TMJs revealed normal bony contours. There was no tenderness of temporalis or masseter muscle. Physical manipulation to restore the normal condyle-disc relationship was tried without success. A stabilization splint was provided to the patient and she was reviewed after three months. Her pain had reduced by nearly 40% but the interincisal opening did not improve. Patient was taken up for surgical correction under general anaesthesia.

An Alkayat and Bramley's modification of preauricular incision was used to expose the eminence and TMJ. A round burr was used to mark the part of the eminence to be resected (Fig. 1). A fissure burr was used to deepen the cut followed by chisel and mallet to perform the resection. The rough bony edges were smoothed by a vulcanite burr. TMJ movements were checked, haemostasis achieved and the wound was sutured in layers. Mild physiotherapy was begun from fourth day. After seven days, patient was advised complete jaw opening exercise. She was reviewed after one month. Her pain had decreased but she still had deviation of the mandible on opening of mouth. Patient was instructed to

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Fig. 1 : Diagram showing marking on the articular eminence before resection.

stand in front of a mirror and do jaw opening exercises so that she could retrain her muscles to open her mouth correctly. After two months, there was no deviation of mandible on opening. Patient was free from pain and her interincisal opening increased to 42mm on normal opening.

Discussion

Conservative management with the use of splints helps in reducing pain but does not increase the inter incisal opening. Stiesch Scholz et al [5] studied 40 patients, half of them using stabilization splint and the other half using pivot splint therapy concluded that both types of splint provided effective therapy in anterior disc displacement without reduction.

In 1856, Humphrey introduced the surgical management of TMJ. Since then various treatment modalities like menisectomy, condylectomy, high condylar shave, disc repositioning procedures, condylotomy, eminectomy, modified condylotomy, vertical ramus osteotomies and arthroscopic surgery have been used to correct ID. Most of these procedures relieve pressure on the joint and create space between the condylar head and glenoid fossa, thereby relieving pain. A better understanding of the mechanism of pain in ID and importance of the meniscus precludes removal of the meniscus without replacement. In cases of meniscus removal, temporalis muscle and fascia flap rotated medial to the zygomatic arch is used to line the glenoid fossa.

Eminectomy, a procedure generally advocated for recurrent TMJ dislocation [6] can be performed to correct closed lock. In TMJ dislocation, once the condylar head translates out of the glenoid fossa, the steep slope of articular eminence prevents it from going back into the glenoid fossa resulting in dislocation of

the joint. The rationale behind eminectomy is this that if the articular eminence is resected, the condylar head can move freely in and out of the glenoid fossa without the risk of dislocation. The same logic can be applied in the treatment of closed lock. The disc which was dislocating antero medially and irreducible because of the presence of articular eminence would become reducible by eliminating the obstruction (the eminence) in its path of return. Stassen et al [7], in a study of eighteen patients who underwent eminectomy for correction of closed lock, found an average improvement of 17.9 mm in interincisal opening. In the present case the opening was 0.8 mm. Williamson et al [8], carried out a prospective study in 20 patients with ID and found that the maximum mouth opening increased by an average of 12mm after eminectomy and recorded an improvement in symptoms in 85% of patients.

Eminectomy helps by making the non reducing disc into a reducing disc, eliminates pain in the joint and improves TMJ mobility. The procedure is not as debilitating as condylectomy or condylar shave.

Conflicts of Interest

None identified

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